UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,516	05/13/2005	Michel Zamfiroiu	BDM-05-1041	9933

35811 7590 08/12/2009

IP GROUP OF DLA PIPER LLP (US)
ONE LIBERTY PLACE
1650 MARKET ST, SUITE 4900
PHILADELPHIA, PA 19103

EXAMINER	
SANDERS, AARON J	
ART UNIT	PAPER NUMBER
2168	

NOTIFICATION DATE	DELIVERY MODE
08/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.phil@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	10/527,516	ZAMFIROIU, MICHEL	
	Examiner	Art Unit	
	AARON SANDERS	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-15 and 17-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-15 and 17-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 May 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 29 May 2009 has been entered. Claims 13-15 and 17-24 are pending. Claims 13-15, 17-21, and 23-24 are currently amended. Claims 1-12 and 16 are cancelled. No claims are new. This action is FINAL.

Specification

The amendment to the specification filed 29 May 2009 has been entered.

The specification is objected to for lack of clarity. Applicant has simply deleted the phrases "the invention," "of the invention," "in accordance with the invention," etc. This makes the sentences containing such phrases incomplete. If the applicant does not wish to recite the term "invention," the phrases "the invention," "of the invention," "in accordance with the invention," etc. should be replaced with an equivalent phrase. For example, applicant could use the phrases "the method," "of the method," "in accordance with the method," etc.

Claim Objections

As per claim 13, the phrase "wherein reading the main database comprises" should be "wherein reading the main digital database comprises."

As per claim 15, the limitation "the applications" lacks antecedent basis in the claims. Further, the clause "passing the number of semantic levels" is unclear. Specifically, it is unclear how "passing" is related to the other clauses.

As per claim 18, it is unclear to which identifiers the phrase "the identifiers" refers.

As per claim 22, the limitation "various branches" lacks antecedent basis in the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13-15 and 17-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Klein et al., U.S. 6,631,374 ("Klein").

13. Klein teaches "*A process for constructing an organized digital database in a traceable form, wherein a computer-readable medium comprises computer-executable instructions for performing the process, the process comprising*," see col. 1, ll. 7-10, "a system and method for providing fine-grained temporal database access in a consistent read environment."

Klein teaches "*modifying a main digital database by adding, deleting, or modifying a first recording of the main digital database, comprising*," see col. 2, ll. 38-50, "a transaction makes a change to a relative database block (or simply, 'data block')," where the claimed "modifying" is the referenced "transaction" and the claimed "recording" is the referenced "data block."

Klein teaches "*creating at least one additional digital recording, wherein the at least one additional digital recording comprises at least*," see Fig. 4 and col. 6, ll. 51-67, "FIG. 4 is a data

structure diagram showing the structure of a transaction table entry 70 for use in the database 23 of FIG. 2." Klein teaches "*(i) unique digital identifiers of concerned recordings and attributes of the main digital database*," see Fig. 4 and col. 6, ll. 51-67, "The relative database block 71 refers to the database block within the data tables 36 to which the transaction table entry 70 relates," where the claimed "unique digital identifier" is the referenced "relative database block 71" and the claimed "concerned recordings and attributes" are the referenced "database block[s] within the data tables 36." Klein teaches "*(ii) a unique digital identifier of a state of the main digital database corresponding to the modification of the main digital database*," see Fig. 2 and col. 6, ll. 17-23, "The consistent read mechanism iterates through the transaction table entries to provide a selective temporal view of row data as of a given… system change number," where the claimed "unique digital identifier" is the referenced "system change number" and the claimed "state… corresponding to the modification" is the referenced "temporal view." Klein teaches "*and (iii) elementary values of attributes assigned via elementary operations without proceeding to store non-modified attributes or recordings*," see Fig. 4 and col. 6, ll. 51-67, "The actual data 75 details the actual data values by address and content," where the claimed "elementary values" are the referenced "actual data 75."

Klein teaches "*addition of the at least one additional digital recording in an internal historical database composed of at least one internal historical table*," see Fig. 2 and col. 6, ll. 8-16, "The rollback mechanism 32 journals transactions in a transaction table 34," where the claimed "historical database" is the referenced group of "rollback segments" 35 and the claimed "historical table" is the referenced "transaction table."

Klein teaches "*and reading the main digital database, wherein reading the main database comprises*," see Fig. 9 and col. 7, l. 66 – col. 8, l. 8, "FIG. 9 is a flow diagram showing a method for providing fine-grained temporal database access 140 in a consistent read environment."

Klein teaches "*receiving an original request associated with the unique digital identifier of a target state*," see Fig. 9 and col. 8, ll. 9-17, "Thus, the environment of the snapshot must first be retrieved (block 141) from the transaction table 34 (shown in FIG. 2). The environment includes the transaction identifier xid, relative user block address rdba, and system change number scn as of the requested query time," where the claimed "original request" is the referenced environment retrieval and the claimed "unique digital identifier of a target state" is the referenced "system change number."

Klein teaches "*transforming the original request to construct a modified request for addressing the internal historical database, comprising criteria of the original request and the unique digital identifier of the target state*," see col. 8, ll. 30-43, "FIG. 10 is a flow diagram showing a routine for performing a consistent read operation 160 for use in the method 140 of FIG. 7 [*sic*]. The purpose of this routine is to access the retained data values stored in the transaction table entries 35 (shown in FIG. 2) associated with the system change number for the database 23 as of the requested query time. First, the relative database block is retrieved (block 161) from the persistent storage 22," where the claimed "modified request" is the referenced "relative data block" retrieval and the claimed "criteria of the original request" is the referenced "requested query time." The environment retrieval accesses the transaction table 34, while the data block retrieval accesses the persistent storage 22. Figs. 9-10 show that after the

environment is retrieved, the referenced method retrieves a data block. Thus, the request that retrieves the environment must be "transformed" to retrieve the data block.

Klein teaches "*and reconstructing the past recording or recordings corresponding to the criteria of the original request and to the target state, wherein reconstructing comprises finding elementary values contained in the at least one additional digital recording of the internal historical database and corresponding to the criteria of the original request to reduce requirements of storage capacity and processing times*," see Fig. 10 and col. 8, ll. 30-43, "Next, each interested transaction entry (ITE) 51 (shown in FIG. 3) is iteratively processed (blocks 162-169) to logically reconstruct the database 23 as of the requested query time."

Klein teaches "*wherein the main digital database comprises at least one table with organized development links between the unique additional digital identifiers of sequential and alternative states of the main digital database*," see Fig. 2 and col. 6, ll. 8-16, "The rollback mechanism 32 journals transactions in a transaction table 34… The actual data value changes are stored as linked transaction table entries," where the claimed "main database" is the referenced database 23 and the claimed "development links" are the referenced links between "transaction table entries."

14. Klein teaches "*The process according to claim 13, wherein the at least one additional digital recording of the internal historical database also contains references to other additional digital recordings of the internal historical database to specify connections of dependency of the source-destination type constituting a stream of interferences between data versions*," see Figs. 4-5 and col. 7, ll. 1-9, "FIG. 5 is a functional block diagram 80 showing the relationship between a transaction table 81 and transaction table entries 82, 83, 84… The user block address uba_x

references an initial transaction table entry uba_x 82. Each transaction table entry uba_x is linked as a singly-linked list to next transaction table entries uba_{x+1} and uba_{x+2}," where uba_{x+2} "depends" on uba_{x+1}, which depends on uba_x and the claimed "source-destination type" is that each referenced transaction table entry could reference the same changing block of data.

15. Klein teaches "*The process according to claim 13, wherein modifying the main digital database comprises a logic operation*," see col. 1, ll. 44-55, "Related data values are stored in rows within the tables and each data value can be defined to store virtually any type of data object, including alphanumeric strings, numeric values, or binary data. Changes to the database accrue as transactions are executed," where the claimed "logic operation" could be a referenced "transaction."

Klein teaches "*and addition in the internal historical database comprises: recording the state of the main digital database corresponding to the logic operation, where there are as many additional digital recordings as parameters of the logic operation*," see Fig. 2, col. 6, ll. 8-16, "The rollback mechanism 32 journals transactions in a transaction table 34," and col. 1, ll. 44-55, "Related data values are stored in rows within the tables and each data value can be defined to store virtually any type of data object, including alphanumeric strings, numeric values, or binary data. Changes to the database accrue as transactions are executed," where each involved numeric value, i.e. the claimed "parameters," would require its own transaction table entry in order to reconstruct the logic operation at a later time.

Klein teaches "*recording a possible result of the logic operation*," see col. 1, ll. 44-55, "Related data values are stored in rows within the tables and each data value can be defined to store virtually any type of data object, including alphanumeric strings, numeric values, or binary

data. Changes to the database accrue as transactions are executed," where the referenced "numeric values" could be the result of the claimed "logic operation."

Klein teaches "*and specifying connected references to regroup operations from the elementary level of modification to a level of the transaction, passing the number of semantic levels necessary for the applications*," see Fig. 2 and col. 6, ll. 8-16, "The rollback mechanism 32 journals transactions in a transaction table 34… The actual data value changes are stored as linked transaction table entries."

17. Klein teaches "*The process according to claim 13, wherein the table or tables of the organized development links between the states of the main digital database contain(s) first recordings specifying rules of correspondence between the at least one additional digital recording of the internal historical database and the states of the main digital database*," see col. 3, ll. 18-41, "The ordered row data values stored in the undo entries are retrieved by referencing the transaction table entries at each address included in the interested transaction entry with the transaction identifier for the at least one committed transaction."

18. Klein teaches "*The process according to claim 17, wherein reading comprises determining the state of the main digital database by referring to the identifiers and to a table of development links between the states of the main digital database*," see Fig. 5 and col. 7, ll. 1-9, "FIG. 5 is a functional block diagram 80 showing the relationship between a transaction table 81 and transaction table entries 82, 83, 84… The user block address uba_x references an initial transaction table entry uba_x 82. Each transaction table entry uba_x is linked as a singly-linked list to next transaction table entries uba_{x+1} and uba_{x+2}. Other forms of dynamically allocable data storage are feasible," where the referenced linked list could be stored in a table.

19. Klein teaches "*An architecture for database management that employs the process according to claim 13, wherein an application querying the main digital database can specify the state of the desired main digital database*," see Fig. 1 and col. 3, ll. 18-41, "A logical select operation is executed on the database for row data values as of a query time occurring prior to the commit time of at least one committed transaction."

20. Klein teaches "*The architecture according to claim 19, wherein the application brings about modifications in the entire state of the main digital database and gives rise, in the instance of an attempt to modify a previous state, to creation of new alternatives of digital development of the main database, whose data is generated by the same internal historical database*," see col. 1, l. 65 – col. 2, l. 6, "Versioning disables operations that alter or delete data values in the persistent store. Instead, a new version of any changed row is created, thereby preserving the original data values as an older version of the row."

21. Klein teaches "*The process according to claim 15, wherein one or more dependency links serve as recovery criteria for said operations already carried out*," see col. 2, ll. 16-22, "Some database systems incorporate transaction logs which track and record all operations performed against the database. Log mining allows those operations which have effected the data to be reconstructed back into database statements and, hopefully, transposed, so as to allow committed changes to be reversed."

22. Klein teaches "*The process according to claim 15, further comprising integrating or merging updates carried out on various branches into the framework of a new state inheriting these branches*," see Fig. 10 and col. 9, ll. 5-17, "The retrieved data values from the rolled back

transactions are provided (block 169)," where the process of Fig. 10 "merges" the previous updates to create a new state, i.e. the state of the database at the time of the consistent read.

23. Klein teaches "*The process according to claim 15, further comprising treating cases of the development of the structure of the data of the main digital database as particular cases of the development of the data of the main digital database*," see col. 9, ll. 5-17, "Similarly, the transaction table entries could also store record, table, or schema changes. As well, the temporal access operations operate on a single table as of a fixed point in time."

24. Klein teaches "*The process according to claim 15, wherein the internal historical database is explored and queried by applications via a native mode of a DBMS to obtain information and to navigate along versions and dependency flows in accordance with the querying language in force required by the DBMS*," see Fig. 2 and col. 5, ll. 2-5, "the database engine 21 and database 23 form a relational database management system."

Response to Arguments

As per applicant's argument that Klein does not teach "*transforming the original request to construct a modified request for addressing the internal historical database, comprising criteria of the original request and the unique digital identifier of the target state*" as in claim 13, the examiner respectfully disagrees. Specifically, the examiner cited col. 8, ll. 30-43, "FIG. 10 is a flow diagram showing a routine for performing a consistent read operation 160 for use in the method 140 of FIG. 7 [*sic*]. The purpose of this routine is to access the retained data values stored in the transaction table entries 35 (shown in FIG. 2) associated with the system change number for the database 23 as of the requested query time. First, the relative database block is

retrieved (block 161) from the persistent storage 22." The claimed "modified request" is the referenced "relative data block" retrieval and the claimed "criteria of the original request" is the referenced "requested query time." The environment retrieval accesses the transaction table 34, while the data block retrieval accesses the persistent storage 22. Figs. 9-10 show that after the environment is retrieved, the referenced method retrieves a data block. Thus, the request that retrieves the environment must be "transformed" to retrieve the data block.

As per applicant's argument that Klein does not teach "*wherein the at least one additional digital recording of the internal historical database also contains references to other additional digital recordings of the internal historical database to specify connections of dependency of the source-destination type constituting a stream of interferences between data versions*" as in claim 14, the examiner respectfully disagrees. Specifically, the examiner cited Figs. 4-5 and col. 7, ll. 1-9, "FIG. 5 is a functional block diagram 80 showing the relationship between a transaction table 81 and transaction table entries 82, 83, 84… The user block address uba_x references an initial transaction table entry uba_x 82. Each transaction table entry uba_x is linked as a singly-linked list to next transaction table entries uba_{x+1} and uba_{x+2}." The uba_{x+2} "depends" on uba_{x+1}, which depends on uba_x and the claimed "source-destination type" is that each referenced transaction table entry could reference the same changing block of data.

As per applicant's argument that Klein does not teach "*recording a possible result of the logic operation*" as in claim 15, the examiner respectfully disagrees. Specifically, the examiner cited col. 1, ll. 44-55, "Related data values are stored in rows within the tables and each data value can be defined to store virtually any type of data object, including alphanumeric strings,

numeric values, or binary data. Changes to the database accrue as transactions are executed." The referenced "numeric values" could be the result of the claimed "logic operation."

As per applicant's argument that Klein does not teach "*wherein reading comprises determining the state of the main digital database by referring to the identifiers and to a table of development links between the states of the main digital database*" as in claim 18, the examiner respectfully disagrees. Specifically, the examiner cited Fig. 5 and col. 7, ll. 1-9, "FIG. 5 is a functional block diagram 80 showing the relationship between a transaction table 81 and transaction table entries 82, 83, 84… The user block address uba_x references an initial transaction table entry uba_x 82. Each transaction table entry uba_x is linked as a singly-linked list to next transaction table entries uba_{x+1} and uba_{x+2}. Other forms of dynamically allocable data storage are feasible." The referenced linked list could be stored in the claimed table.

As per applicant's argument that Klein does not teach "*wherein the application brings about modifications in the entire state of the main digital database and gives rise, in the instance of an attempt to modify a previous state, to creation of new alternatives of digital development of the main database, whose data is generated by the same internal historical database*" as in claim 20, the examiner respectfully disagrees. Specifically, the examiner cited col. 1, l. 65 – col. 2, l. 6, "Versioning disables operations that alter or delete data values in the persistent store. Instead, a new version of any changed row is created, thereby preserving the original data values as an older version of the row."

As per applicant's argument that Klein does not teach "*wherein one or more dependency links serve as recovery criteria for said operations already carried out*" as in claim 21, the examiner respectfully disagrees. Specifically, the examiner cited col. 2, ll. 16-22, "Some

database systems incorporate transaction logs which track and record all operations performed against the database. Log mining allows those operations which have effected the data to be reconstructed back into database statements and, hopefully, transposed, so as to allow committed changes to be reversed."

As per applicant's argument that Klein does not teach "*integrating or merging updates carried out on various branches into the framework of a new state inheriting these branches*" as in claim 22, the examiner respectfully disagrees. Specifically, the examiner cited Fig. 10 and col. 9, ll. 5-17, "The retrieved data values from the rolled back transactions are provided (block 169)," where the process of Fig. 10 "merges" the previous updates to create a new state, i.e. the state of the database at the time of the consistent read.

Thus, the 35 U.S.C. 103 rejection of the claims is maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Sanders whose telephone number is 571-270-1016. The examiner can normally be reached on M-F 9:00a-4:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168

/Aaron Sanders/
Examiner, Art Unit 2168
5 August 2009